

Description of take location: Pacific Ocean;
States: HI (Main Hawaiian Islands and Northwest Hawaiian Islands)

The proposed research activities (composed of aerial and surface ship surveys, as well as recording devices mounted on the sea floor) of the take-location in the Pacific Ocean in the waters offshore of the Main Hawaiian Islands (MHI) and the Northwest Hawaiian Islands (NWHI) have two primary purposes. These are: 1) To continue the annual documentation through surveys the ongoing population-level changes of cetacean species including both odontocetes and mysticetes, in particular the humpback whales, and 2) to investigate the impact of anthropogenic sound in the ocean on marine mammal species including both odontocetes and mysticetes. The particular emphasis will be assessing the impact of noise generated by U.S. Navy operations, including mid-frequency active sonar, low-frequency active sonar, ordnance training, and vessel traffic on marine mammals.

These Navy activities producing anthropogenic noise occur most often at designated instrumented training ranges and adjacent waters, but may also occur outside these ranges, for example in more broadly designated Navy operational areas (OPAREAS), military special use airspace complexes, or any of the waters under the responsibility of Naval Facilities Engineering Command Pacific (NAVFAC Pacific). Therefore, although these OPAREAS and airspace complexes in sum cover relatively large areas of waters offshore of the Hawaiian island chain, we have designated the majority of these as potential take locations due to the focus and purpose of our intended research on anthropogenic noise under the U.S. Navy's election to consolidate ESA and MMPA compliance efforts under a recent "indefinite delivery, indefinite quantity" (IDIQ) request for quotes (RFQ) (see attached).

Regarding time specificity, the research on the effects of anthropogenic noise is planned to be performed: during active U.S. Navy and military exercises, immediately before and after such exercises, as well as during inactive periods between exercises.

The OPAREAS and airspace complexes include the Hawaiian OPAREA and Hawaiian Range Complex (HRC). Subsurface training and instrumented training ranges include those of Fleet Area Control and Surveillance Facility [FACSFAC] Pearl Harbor, the Pacific Missile Range Facility (PMRF) in waters off Kauai, Barking Sands Tactical Underwater Range (BARSTUR), Barking Sands Underwater Range Expansion (BSURE), and Large Area Tracking Range (LATR).

In addition, the waters of the MHI and NWHI are included in whole in the take location to continue the investigation of long-term population trends of cetaceans in all Hawaiian waters. These waters include the waters of the Hawaiian Islands Humpback Whale National Marine Sanctuary and Papahānaumokuākea Marine National Monument. Aerial and surface vessel surveys related to this research goal will not necessarily overlap with research on the effects anthropogenic noise in Hawaiian waters.

Annual expected take numbers expected for incidental harassment in this region over the five year life of the permit were computed for each species from the total number of sightings observed in 10-year aerial survey of the waters within 25 nautical miles (nmi) of the main populated Hawaiian islands (1993-03 Hawaiian Islands aerial surveys, Mobley, unpublished data; For 1993-98 see Mobley et al., 2000). These raw sighting figures were adjusted for the effort involved in the study relative to the effort expected in this region from the IDIQ RFQ (i.e., 200 hrs/yr aerial survey, and 40 hrs/yr ship survey), as well as up to 160 hrs/yr additional ship survey work unrelated to the IDIQ RFQ. Because the aerial surveys usually occur below an altitude of 1000 ft. (304.8 m), and because the ship survey frequently require close approaches for species and group size identification, all sightings are considered takes. The final expected take figure was multiplied by a factor of 2.0 to attempt to account for variation in the sighting numbers, uncertainty within the computations, as well as potentially unexpected sighting numbers due to seasonal or sub-regional variations in abundance during the study periods. A minimum expected take figure of 50 was used. For two species with numbers below the minimum figure of 50, Fraser's dolphin (*Lagenodelphis hosei*) and the striped dolphin (*Stenella coeruleoalba*), sightings from a 2002 boat-based survey of the entire Economic Zone (EEZ) surrounding the entire Hawaiian chain by Barlow (2006) was used as the expected take figure, as the Mobley study is known to underestimate abundance of these species beyond a distance of 25nmi from shore. Because Calambokidis (2008) estimated the growth rate of the Hawaiian population of humpback whales (*Megaptera novaeangliae*) to be between 5.5-6.0% yearly, the expected take figure was multiplied by a factor of 2.0 to account for the estimated population in the 2010-2015 period of the permit.

For more information see:

1) Commander Navy Region Hawaii

<https://www.cnric.navy.mil/Hawaii/index.htm>

2) Pacific Missile Range Facility Barking Sands

<http://www.cnric.navy.mil/BarkingSands/index.htm>

3) Hawaii Range Complex EIS

<http://www.govsupport.us/navynepahawaii/hawaiiirceis.aspx>

<http://www.navy.mil/oceans/documents.html> (EIS & Marine Resource Assessment links)